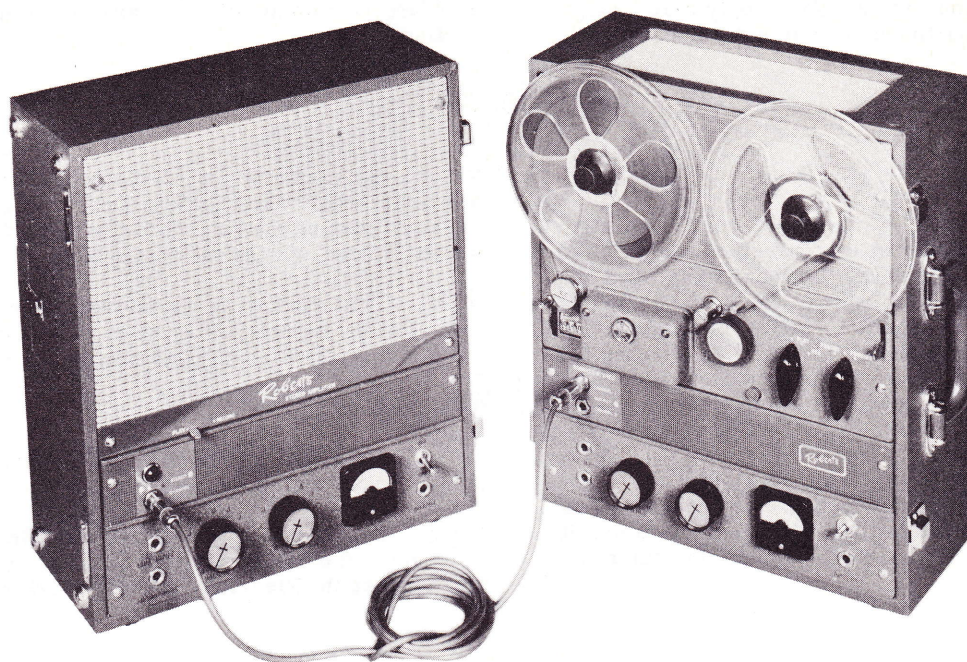


PHOTOFACT® Folder

ROBERTS MODELS A-901,
90, 90-C, 90-SROBERTS MODELS A-901,
90, 90-C, 90-SROBERTS MODELS A-901,
90, 90-C, 90-S

GENERAL INFORMATION

Roberts Models 90, 90-S, and 90-C tape recorders consist of two basic sections -- a tape-transport mechanism and a record-playback amplifier.

The Model 90 is a monaural tape recorder. Models 90-S and 90-C are stereo tape recorders. Stereo can be recorded by connecting a Roberts Model A-901 stereo amplifier to jack 2 on the stereo tape recorders. On the Model 90-C, a preamplifier is included for the lower channel.

The mechanical controls are interlocked to prevent accidental selection of an incorrect operating mode.

The Roberts tape recorders have two speeds, 7 1/2 and 3 3/4 ips. With both monaural tracks, the recording times are as follows:

Reel Size	3 3/4 Ips	7 1/2 Ips
5" (600 ft.)	1 Hour	1/2 Hour
7" (1200 ft.)	2 Hours	1 Hour

These models are designed to operate on 60 cycles, 110-120 volts AC only.

Supplied by:

Roberts Electronics, Inc.
1028 North La Brea Avenue
Hollywood 38, California

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS 6, INDIANA
CQ407

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DATE 2-60

SET 473

FOLDER 13

SET 473 FOLDER 13

PREPARING FOR OPERATION

1. Remove lid from carrying case.
2. Remove microphone and AC supply cord from storage compartment on left side of carrying case.
3. Make certain all controls are in the Stop position.

FUNCTIONS OF CONTROLS

On-Off Switch

On the Model 90, this is a 2-position switch. When it is in the On position, power is turned on to the amplifier and tape deck. On the Models 90-S and 90-C, it is a 3-position switch. When the switch is pushed to the All On position, power is turned on to the amplifier and tape deck. When it is in the Amp Off position, power is applied to the tape deck only. The Off position turns the power off to the entire unit.

Volume

Turning this control clockwise increases the volume in either record or playback. Turning it counterclockwise decreases the volume in either record or playback.

Tone

This control functions in playback only. Turning it clockwise from position 5 will increase the treble response; turning it counterclockwise from position 5 will attenuate the response.

Play-Record and Record Lock

This is a 3-position control: Stop, Play, and

Record. Turning this control clockwise from the Stop position places the unit in play. Depressing the Record Lock and turning the control to the Record position at the same time, places the unit in Record.

NOTE: This control is interlocked with the Wind-Rewind control. It must be in the Stop position before the Wind-Rewind control can be operated.

Wind-Rewind

Turning this control to the left places the unit in the Wind position; to the right, in the Rewind position.

NOTE: This control is interlocked with the Play-Record control. It must be in the Stop position before the Play-Record control can be operated.

Pause

When this lever is raised, pressure is removed from the drive capstan, and the take-up reel is disengaged. This permits spot editing and momentary stops.

NOTE: This control is not on the Model 90.

OPERATING INSTRUCTIONS

Threading the Tape

1. Place a full reel of tape on feed reel spindle (67), making certain the reel slots engage the protrusions on the pan. Place an empty reel on take-up spindle (27), again making certain the slots engage the protrusions on the pan.
2. Unwind about 14 inches of tape from the supply reel. Hold a section of tape taut and insert into the tape slot, making sure the dull-coated side faces the rear of the recorder.
3. Insert the free end of the tape into one of the slots in the hub of the take-up reel. While holding the end in place, turn the reel two or three times to secure the tape to the reel.

To Make a Monaural Recording

1. Plug a microphone into the Microphone jack, or place a signal from some other source into the Line Input jack.
2. Depress the Record Lock and simultaneously turn the Play-Record control to the Record position.
3. Adjust the Volume control until the average reading on the VU meter is -5.

CAUTION: Do not connect a speaker or other low-impedance load to the Output jack while making a recording.

To Make a Stereo Recording

1. Connect the interconnecting cable from the Channel-2 head jack to the stereo channel in the Model A-901 amplifier.
2. Move the On-Off switch on the tape recorder to All On. Move the On-Off switch on the amplifier to On.
3. Turn the Volume control until the VU meter reads -5.
4. Plug microphones into the Microphone Input jacks, or place signals from another source into the Line Input jacks.
5. Depress the Record Lock and simultaneously turn the Record-Play control on the tape transport to Record.
6. Place the Play-Record switch on A-901 amplifier in Record.
7. On Model 90-C, turn the switch on the built-in preamplifier, on bottom of the case, to Out.

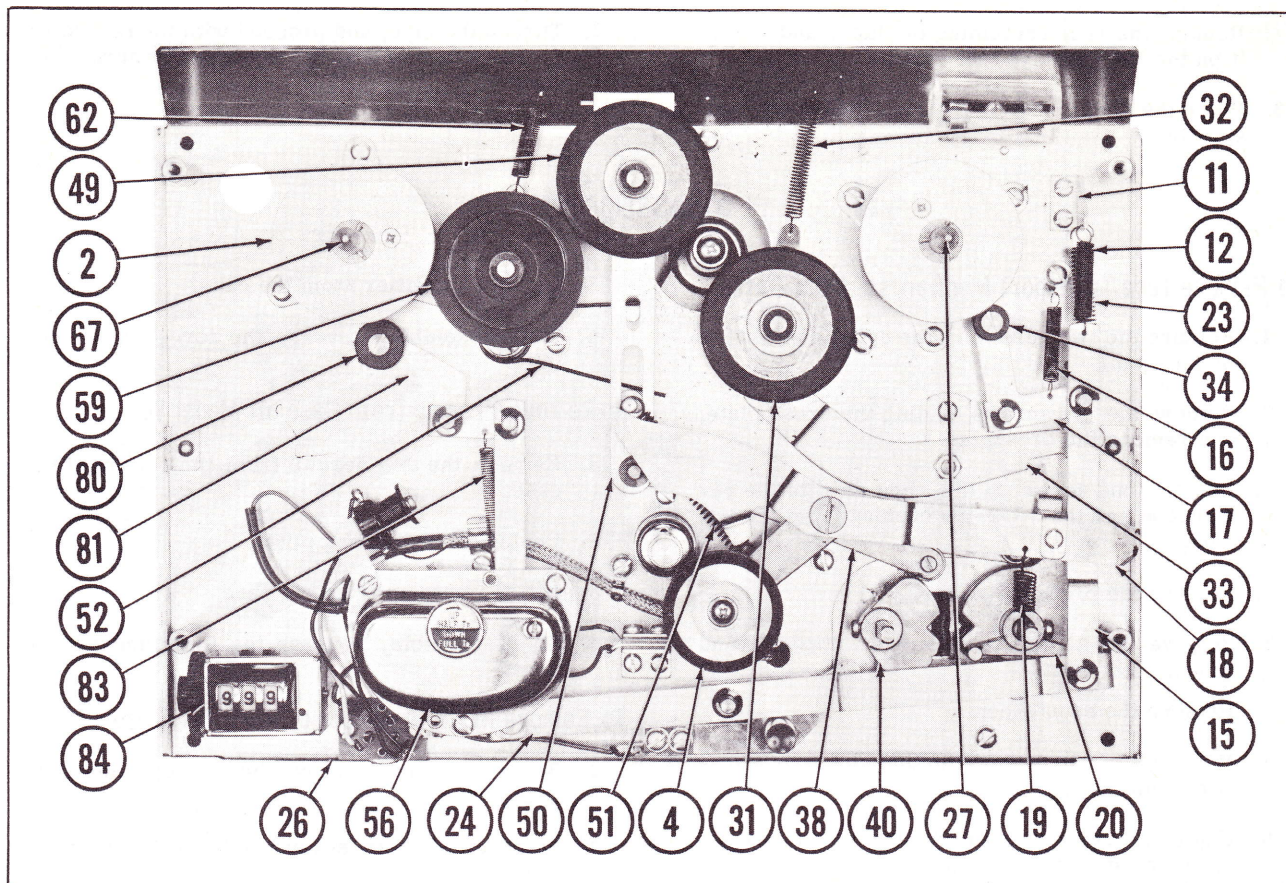


FIG. 1 TOP VIEW OF MECHANISM WITH ESCUTCHEON REMOVED.

ROBERTS MODELS A-901,
90, 90-C, 90-S

Monaural Playback

1. Thread the tape (see "Threading the Tape").
2. Turn the unit on and allow a few seconds for it to warm up.
3. Turn the Play-Record control to Play.
4. Adjust the volume and tone to the desired listening level.

Stereo Playback

1. Thread the tape (see "Threading the Tape").
2. Turn the tape recorder switch to All On. Turn the A-901 amplifier switch to In.
3. Connect the interconnecting cable from the Channel-2 jack of the tape recorder to the Stereo jack on the amplifier.
4. Make certain the Play-Record switch on the amplifier is in Play.
5. Turn the Play-Record control on the tape transport to Play.
6. Adjust the Volume controls on the tape recorder and amplifier to a balanced output.

Speed Change

To change the tape from 7 1/2 to 3 3/4 ips, re-

move the thumbscrew and bushing from the capstan. When the bushing is not being used, store it on the bushing post.

Index Counter

After a tape is threaded on the recorder, set the Index Counter to "000". The index numbers can then be noted at the beginning of each selection, for future reference.

External Speaker

An external speaker may be plugged into the Output jack. The internal speaker will be disconnected when using an external speaker.

Erasing Tape

To erase one track of a tape, turn the knob on top of the head clockwise. This raises the erase head to the half-track position. To erase both tracks at the same time, turn the knob counterclockwise. This lowers the erase head to the full-track position. When the unit is in the Record position, the erase head is automatically positioned before a new recording is made. To erase the tape without putting a new recording on it, turn the volume to minimum and the Play-Record control to Record.

To Use the Second Track (Monaural)

1. Turn the Play-Record control to Stop.

FOLDER 13

2. Remove the reel containing the tape, and place it on the left (supply) reel spindle.
3. Place the empty reel on the right (take-up) reel spindle.

4. Thread the tape, and proceed with the recording as described under "To Make a Monaural Recording."

DISASSEMBLY

To Remove Tape Transport Mechanism from Case

1. Remove the two screws in the spindle pans (one in each pan).
2. Remove the two screws holding the dress plate, and remove the dressplate.
3. Remove one screw on the right side of the escutcheon and the 7 1/2-ips bushing from the left side.
4. Remove the pressure roller.
5. Remove the Play-Record and Wind-Rewind knobs.
6. Remove the escutcheon.
7. Remove the four screws holding the tape transport to the case.
8. Unplug all connections to the tape transport and speaker, and lift the tape transport from the case.
9. To reassemble, reverse the foregoing procedure.

To Remove Amplifier from Case

1. Remove the four screws holding the amplifier and escutcheon to the case.
2. Unplug all connecting plugs.

3. Lift the amplifier from the case.

4. To reassemble, reverse the foregoing procedure.

To Remove Preamp from Case on Model 90-C

1. Remove the two screws from the bottom of the case.
2. Unplug all connecting plugs.
3. Lift the preamp from the case.
4. To reassemble, reverse the foregoing procedure.

To Remove Model A-90I Amplifier from Case

1. Remove the four screws holding the amplifier to the case.
2. Remove the four screws holding the speaker cover on.
3. Disconnect the speaker.
4. Feed the AC cord through the hole in the storage compartment.
5. Lift the amplifier from the case.
6. To reassemble, reverse the foregoing procedure.

ADJUSTMENTS

Record-Playback Head Alignment With Standard Alignment Tape

1. Thread the tape (see "Threading the Tape").
2. Connect a 0.5-volt AC voltmeter to a standard phono plug, and insert the plug into the Output jack.
3. Turn the Tone control to maximum.
4. Remove the two screws from the head cover, and remove the head cover.
5. Insert a screwdriver, through the hole in the head shield, into the alignment screw.
6. Play back the tape at full volume, and rotate the

alignment screw in either direction until the 10,000-cycle note gives the highest meter reading.

Record-Playback Head Alignment With Commercial Music Tape

1. Thread the tape (see "Threading the Tape").
2. Play back the tape at a normal listening level, and adjust the head alignment screw for maximum clarity of high-pitched instruments.

Brake Shoes

When brake shoes (34) and (80) become worn, loosen the mounting screws and rotate the shoes a few degrees until a new braking surface is exposed.

LUBRICATION

Lubricate the following parts every three months

in heavy service, every six months in moderate ser-

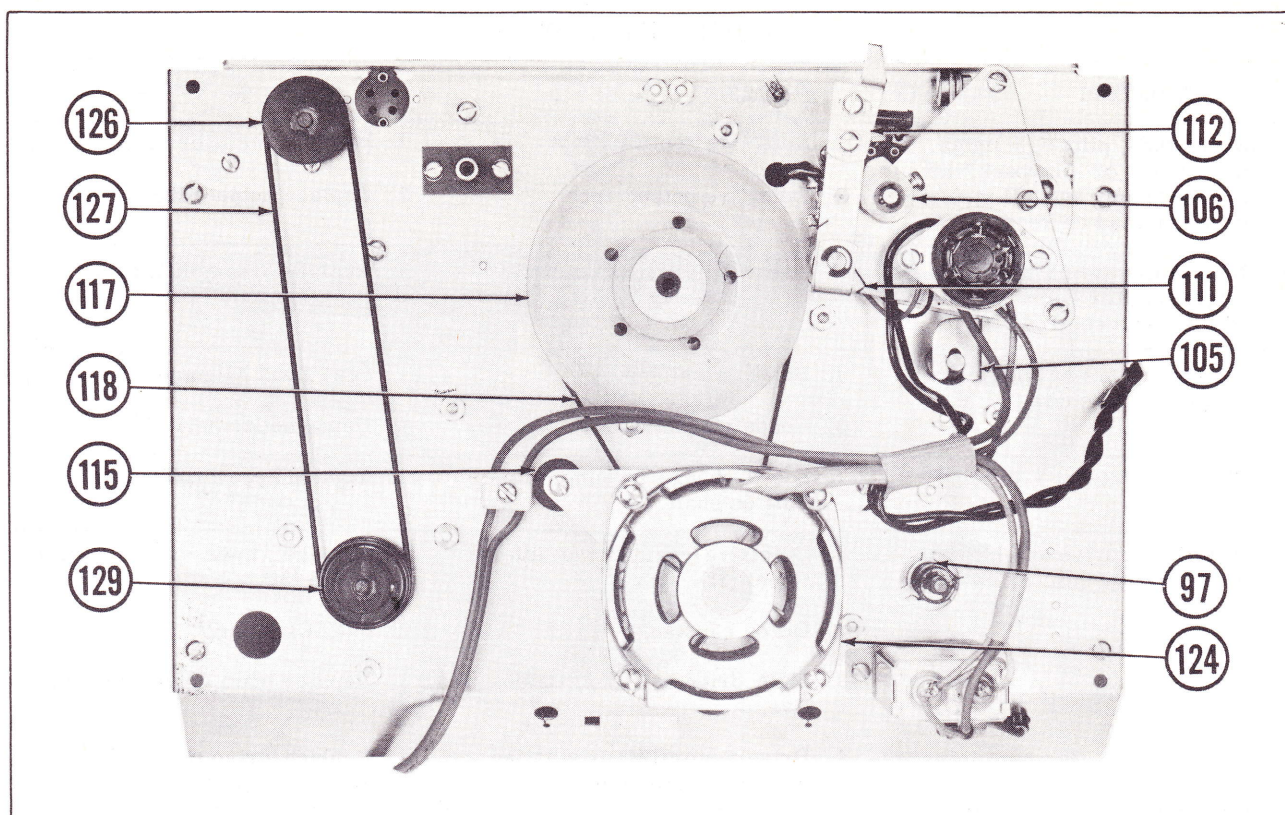


FIG. 2 BOTTOM VIEW OF MECHANISM.

vice, or once a year in light service, as follows:

1. Feed and take-up reel spindle shafts, with two drops of light machine oil on each shaft.
2. Rewind idler bearing and wind take-up idler bearing, with two drops of light machine oil on each bearing.
3. Apply a liberal amount of light machine grease to drive idler bearing bore.
4. Saturate the felt washer in the chrome retaining cup of the drive capstan with light machine oil.
5. Apply a liberal amount of light machine grease to each roller on all levers and cams.
6. The motor bearings are lubricated and sealed at the factory and need no further lubrication.

CLEANING

Most defects, other than wear or breakage, can be traced to dirty surfaces. The recording head, capstan, and pinch wheel (4) may accumulate tape coating residue, which is worn off the tape as it passes these

parts. Remove this accumulation periodically, because it may cause faint recording and poor playback. Clean these parts with a soft cotton swab soaked in alcohol.

TROUBLE CHART

SYMPTOM	CAUSE	REMEDY
Motor does not run, and pilot light does not light.	1. AC cord disconnected.	1. Connect AC cord.
	2. Fuse blown.	2. Replace fuse.
Distorted recordings and poor erase.	1. Bias oscillator tube defective.	1. Replace bias oscillator tube.
Pilot light lights, motor runs, but no record or play.	1. Speaker wires disconnected or broken.	1. Connect or replace speaker wires.
Speaker hum at full volume.	1. Head cable disconnected.	1. Reconnect head cable.

TROUBLE CHART (CON'T.)

SYMPTOM	CAUSE	REMEDY
Motor runs, pilot light lights, no record or playback, no speaker hum, and VU meter does not read on record.	1. Defective rectifier tube. 2. Defective output tube.	1. Replace rectifier tube. 2. Replace output tube.
No record or playback, but slight speaker hum variable with volume control.	1. Preamplifier tube defective.	1. Replace preamplifier tube.
Noisy playback or poor high-frequency response.	1. Heads misaligned. 2. Heads magnetized.	1. See "Head Alignment." 2. Demagnetize heads.
Wow or flutter at 7 1/2-ips speed.	1. Speed change bushing slipping on shaft.	1. Tighten screw (120).
Insufficient drive at 7 1/2-or 3 3/4-ips speeds.	1. Defective main drive idler wheel (31). 2. Oil on capstan. 3. Main drive belt (118) defective. 4. Drive motor (124) or starting capacitor defective.	1. Replace main drive idler wheel (31). 2. See "Cleaning." 3. Replace main drive belt (118). 4. Replace drive motor (124) or starting capacitor.
Tape spills when going from wind or rewind to stop.	1. Reel diameters unequal. 2. Brake shoes (34) and (80) worn or out of adjustment.	1. Tape reels must have the same diameter. 2. Replace or adjust brake shoes (34) and (80).
Index Counter does not function.	1. Counter belt (127) worn or broken.	1. Replace counter belt (127).

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	90-50-43	Reel Table Screw (2)	22	90-50-86	Rewind-Take-up Control Pivot Roller
2	90-50-15	Reel Table (2)	23	90-50-90	Take-up Brake Link Spring
3	90-50-47	Pinch Wheel Screw	24	90-50-78	Main-Brake Pivot Bar Lever
4	90-50-64	Pinch Wheel-Models 90 & 90-S	25	90-50-87	Wind-Take-up Control Pivot Lever-Models 90 & 90-S
5	90-52-27	Pinch Wheel-Model 90-C	26	90-50-25	Deck Baseplate (State Model)
6	90-50-16	Transport Deck Panel	27	90-50-24	Take-up Spindle
7	90-38	Record-Play Knob	28	90-50-36	Splined Roller
8		Set Screw	29		Retaining Ring
9	90-50-22	Wind-Rewind Knob	30		Washer
10	90-50-17	Transport Deck Panel, Head & Controls	31	90-50-72	Main-Drive Idler Wheel
11	90-50-30	Take-up Spring Post Bracket	32	90-50-92	Drive Idler Load Spring
12	90-50-89	Wind-Take-up Slide Bar Spring-Models 90 & 90-S	33	90-50-82	Wind-Take-up Idler Pivot Bar Lever
13		Bracket	34	90-50-77	Brake Shoe, Small
14	90-50-79	Take-up Brake Link Lever	35	90-50-51	Main-Drive Idler Pivot Lever Screw
15	90-50-81	Take-up Brake Spring	36	90-50-39	Spindle Mounting Plate
16	90-50-80	Take-up Brake Bar Lever	37		Roller Securing Screw
17	90-52-23	Pause Lever-Model 90-C	38	90-50-91	Drive Idler Pivot Lever-Models 90 & 90-S
18	90-52-12	Pause-Lever Load Spring-Model 90-C		90-52-43	Drive Idler Pivot Lever-Model 90-C
19	90-50-94	Wind-Rewind Operating Cam	39		Roller
20		Set Screw	40	90-50-93	Play-Record Operating Cam
20A					
21	90-50-32	Steel Ball			

MECHANICAL PARTS LIST (CON'T.)

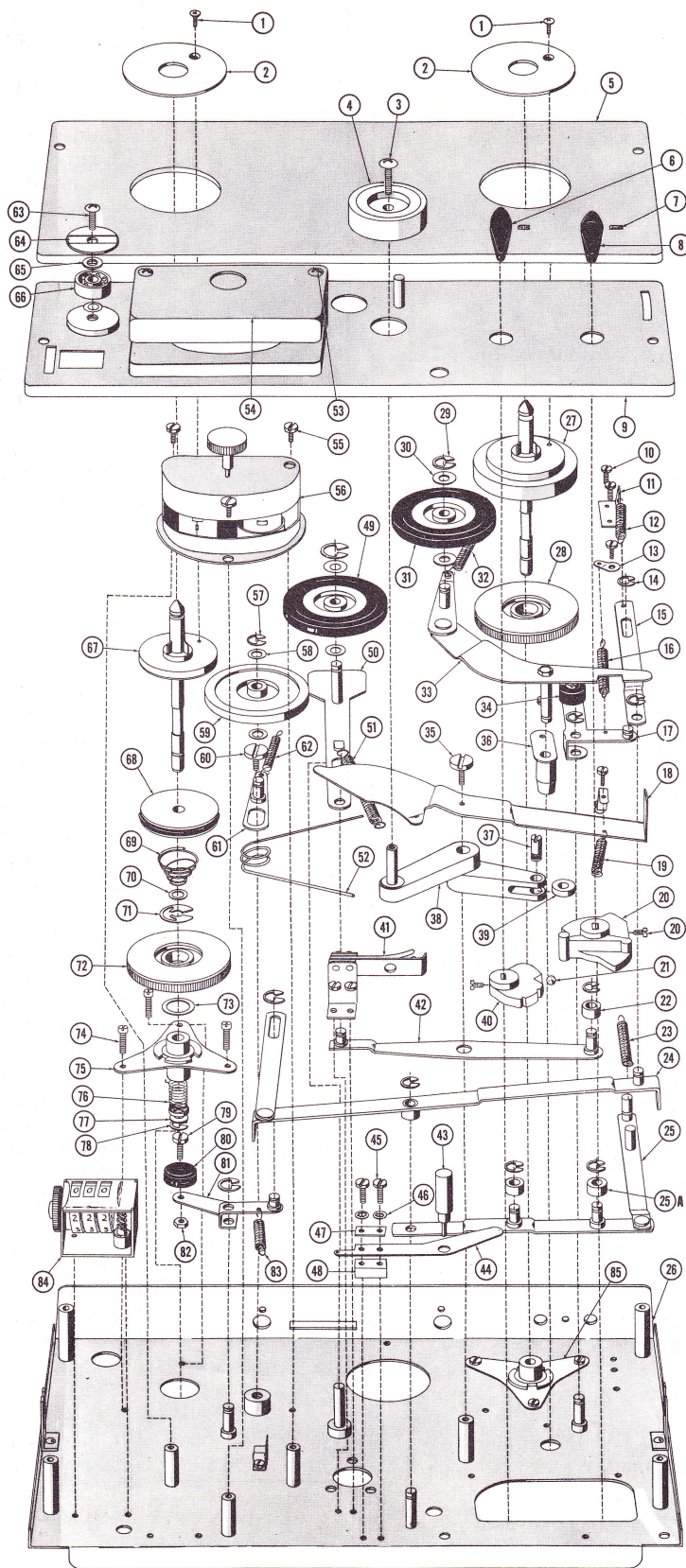
Ref. No.	Part No.	Description
41	90-52-21	Ch. 2 Shorting Switch
42	90-52-08	Rewind Activating Lever
43	90-51-77	Record Lock Button
44	90-51-06	Record Lock Spring
45	90-50-57	Record Lock Screw
46		Lockwasher
47		Insulator
48		Insulator
49	90-52-04	Rewind Idler Wheel
50	90-52-07	Rewind Positioning Lever
51	90-52-26	Tape-Drive Idler Load Spring
52	90-52-11	Rewind Intermediary-Idler Load Spring
53	90-50-48	Head Cover Screw
54	90-51-96	Head Cover-Model 90-C
	90-51-73	Head Cover-Model 90-S
	90-51-18	Head Cover-Model 90
55	90-50-55	Head Screw
56	90-31	Michigan Mag. Head Ass'y., Stereo-Model 90-S
	90-51-64	Head Ass'y., Monaural-Model 90
	90-51-72	Head Ass'y., Stereo-Model 90-S
	90-51-95	Multierase Head Ass'y., Stereo-Model 90-C
57		Retaining Ring
58		Washer
59	90-52-05	Rewind Intermediary-Idler Wheel-Model 90-C
60		Intermediary-Idler Spring Lever Screw
61	90-52-13	Intermediary-Idler Spring Lever
62	90-52-10	Rewind-Idler Release Spring
63	90-50-44	Tape-Guide Ball-Bearing Screw
64		Tape-Guide Top Plate
65	90-50-45	Tape-Guide Washer
66	90-50-63	Tape-Guide Ball Bearing
67	90-52-46	Feed-Reel Spindle Ass'y. -Model 90-C Includes Items 67 thru 72
67A	90-50-02	Feed-Reel Spindle Ass'y. Belt
		Rewind-Models 90 & 90-S
68	90-52-06	Rubber Rewind Drive Ring-Model 90-C
69	90-52-42	Conical Spindle Spring
70		Washer
71		Retaining Ring
72	90-50-36	Splined Roller
73		Washer
74		Spindle Housing Screw
75	90-50-39	Spindle Mounting Plate
76	90-50-65	Take-up Spindle Spring
77		Washer
78		Retaining Ring
79		Brake-Shoe Mounting Screw
80	90-50-77	Brake Shoe, Large (State Size)
81	90-50-75	Feed-Reel Brake Bar Lever
82		Brake-Shoe Nut
83	90-50-76	Feed-Reel Brake-Spring
84	90-50-07	Index-Counter Ass'y.
85	90-50-39	Spindle Mounting Plate
86	90-50-33	Control Ass'y. Bracket

Ref. No.	Part No.	Description
87		Wind-Rewind Detent
88		Fiber Washer
89		Cam
90		Load Spring
91	90-50-98	Idler-Lift Operating Cam
92		Set Screw
93	90-50-09	Wind-Rewind Control Shaft
94		Bottom Plate-Control Ass'y. Bracket
95		Lockwasher
96		Screw
97	90-50-66	Take-Up Spindle Spring
98	90-50-38	Retaining Cup
99		Flat Washer
100	90-50-53	Retaining Ring
101	90-50-97	Idler Lifting-Lever Load Spring
102		Switch Shaft
103		Screw
104		Hex Nut
105	90-50-96	Idler Lifting Lever
106	9051-03	Amplifier Switch-Bar Control Cam
107		Set Screw
108		Flat Washer
109		Cotter Pin
110	90-51-32	Amplifier-Switch Bar Screw
111	90-51-38	Amplifier-Switch Slide-Bar Load Spring
112	90-50-99	Amplifier-Switch Operating-Bar Lever
113		Fiber Washer
114		Retaining Ring
115	90-51-75	Rubber Motor Mount
116	90-51-76	Motor Grounding Spring
117	90-50-95	Flywheel and Capstan-Models 90 and 90-S
	90-52-53	Flywheel and Capstan-Model 90-C
118	90-51-04	Main Drive Belt-Models 90 & 90-S
	90-52-03	Main Drive Belt-Model 90-C
119	90-50-34	Motor-Mount Plate Bracket
120	90-50-46	Speed-Change Bushing Thumb-screw-Models 90 & 90-S
	90-52-42	Speed-Change Bushing Thumb-screw-Model 90-C
121	90-50-21	Speed-Change Bushing-Models 90 and 90-S
	90-52-44	Speed-Change Bushing-Model 90-C
122	90-51-94	Upper Knurled Bushing-Models 90-S and 90-C
123		Motor Mounting Screw
124	90-50-14	Drive Motor
125		Set Screw
126	90-50-67	Counter Pulley
127 *	90-50-68*	Counter Belt *
128		Set Screw
129	90-50-69	Spindle Index-Counter Pulley
130		Cotter Pin

* Counter Belt Walsco Part No. 1410-54

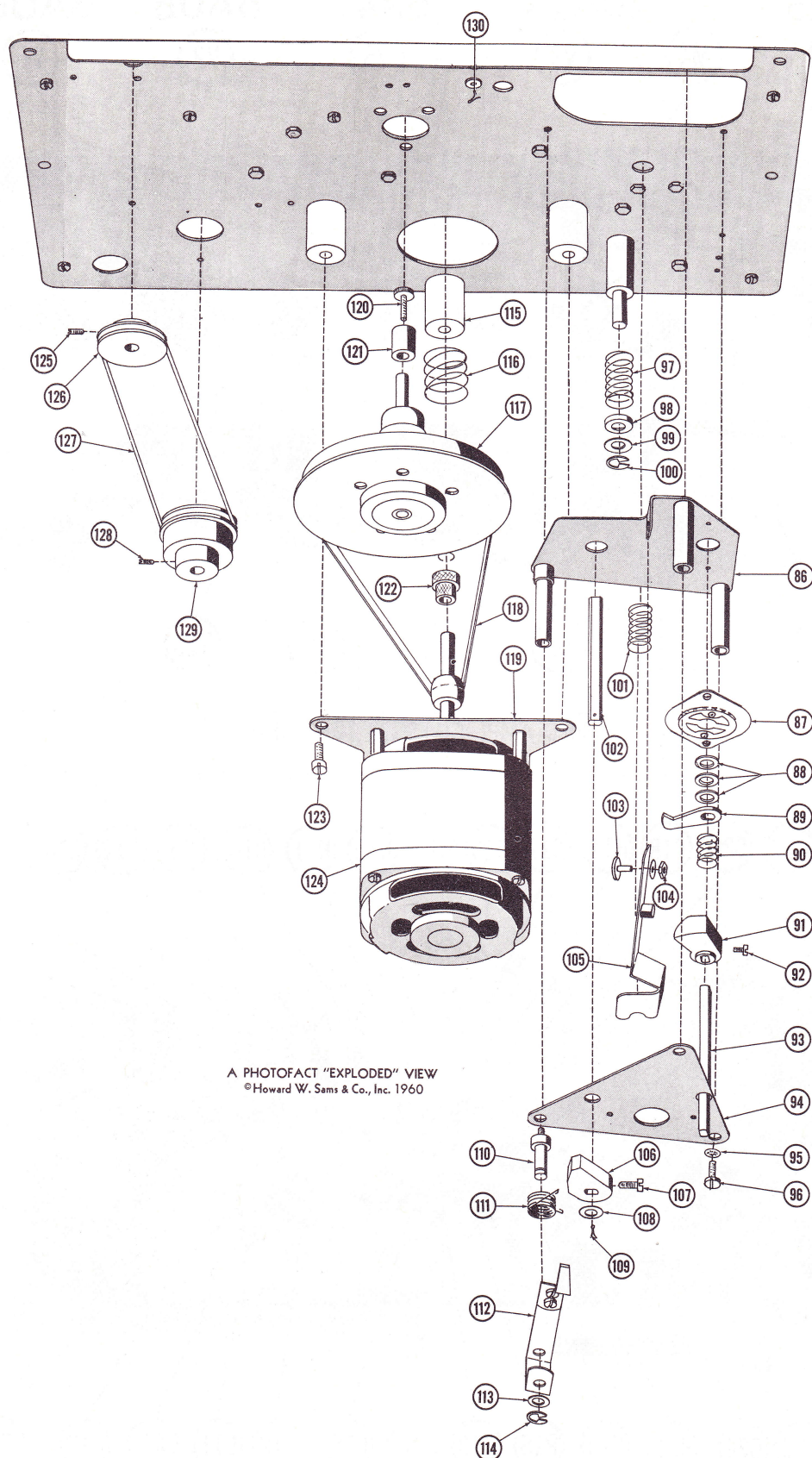
ROBERTS MODELS A-901,
90, 90-C, 90-S

FOLDER 13



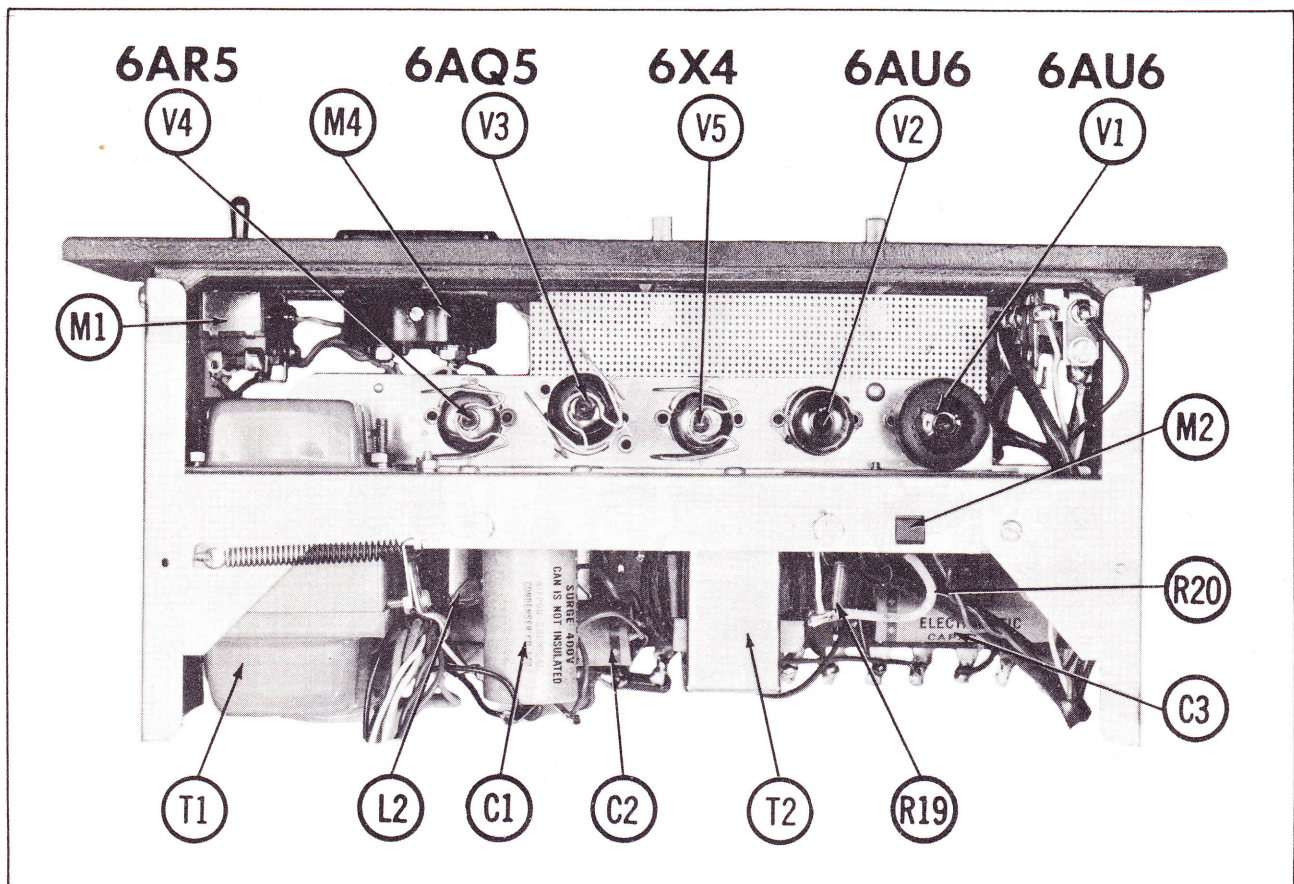
A PHOTOFACT "EXPLODED" VIEW
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FIG. 3A EXPLODED VIEW OF PARTS ABOVE BASEPLATE.

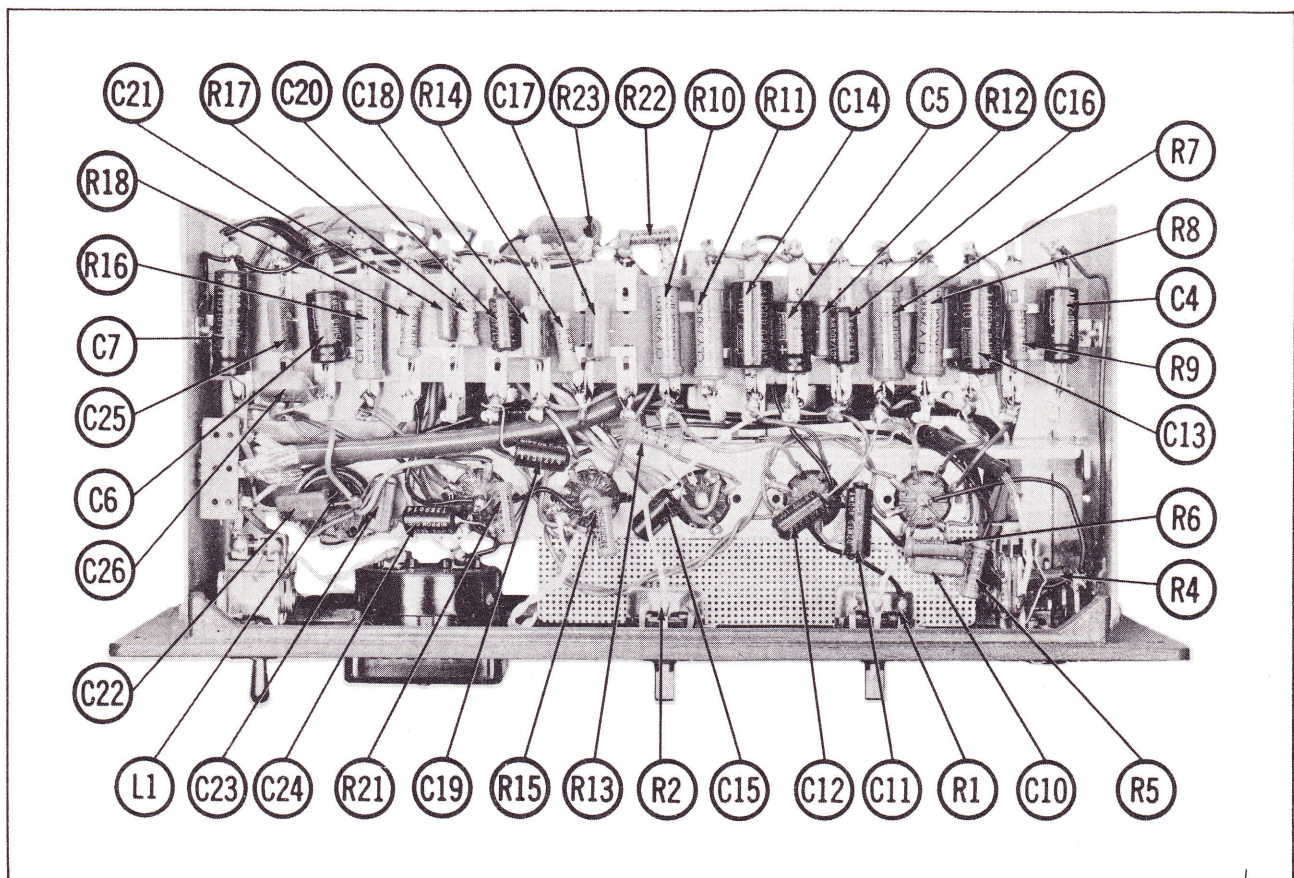


A PHOTOFAC "EXPLODED" VIEW
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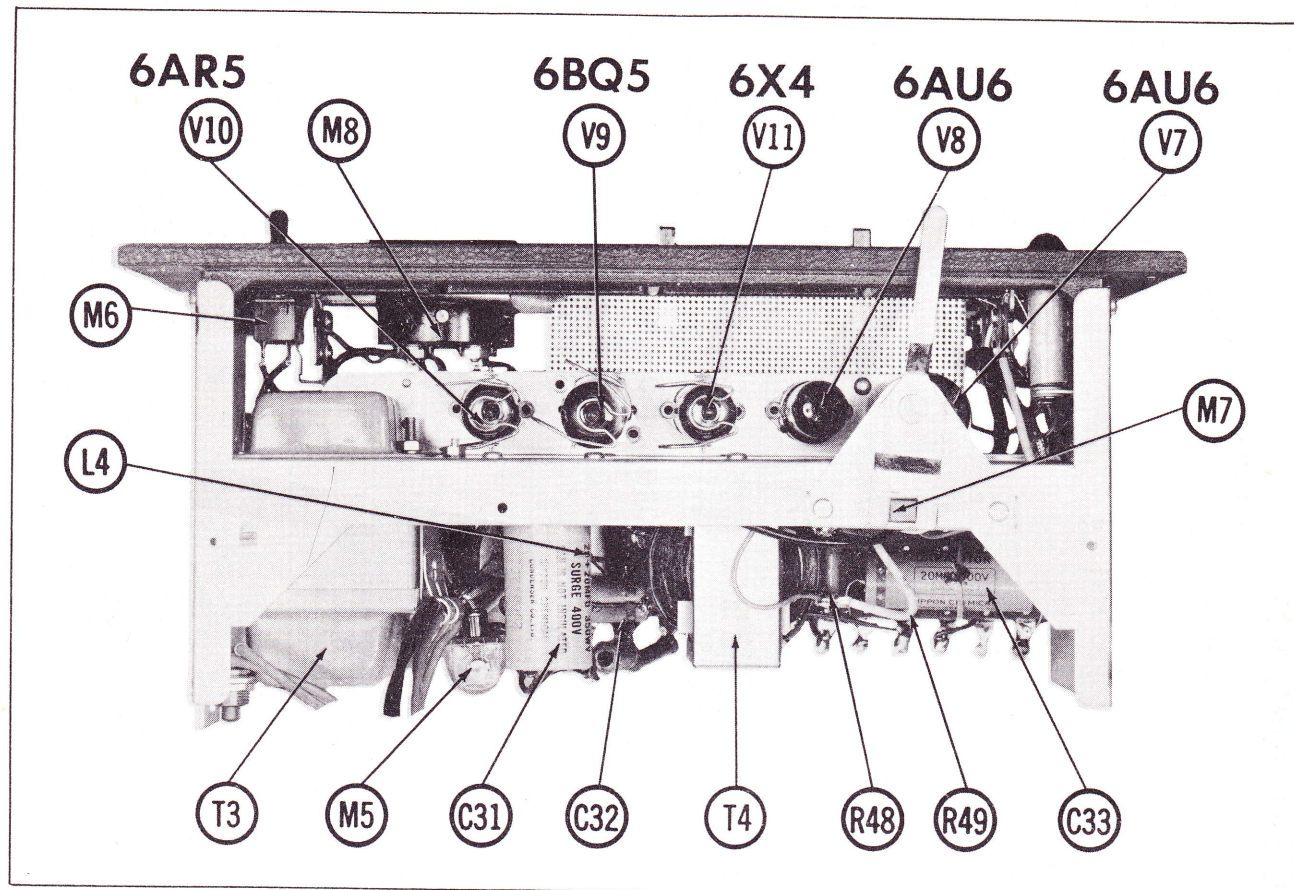
FIG. 3B EXPLODED VIEW OF PARTS BELOW BASEPLATE.



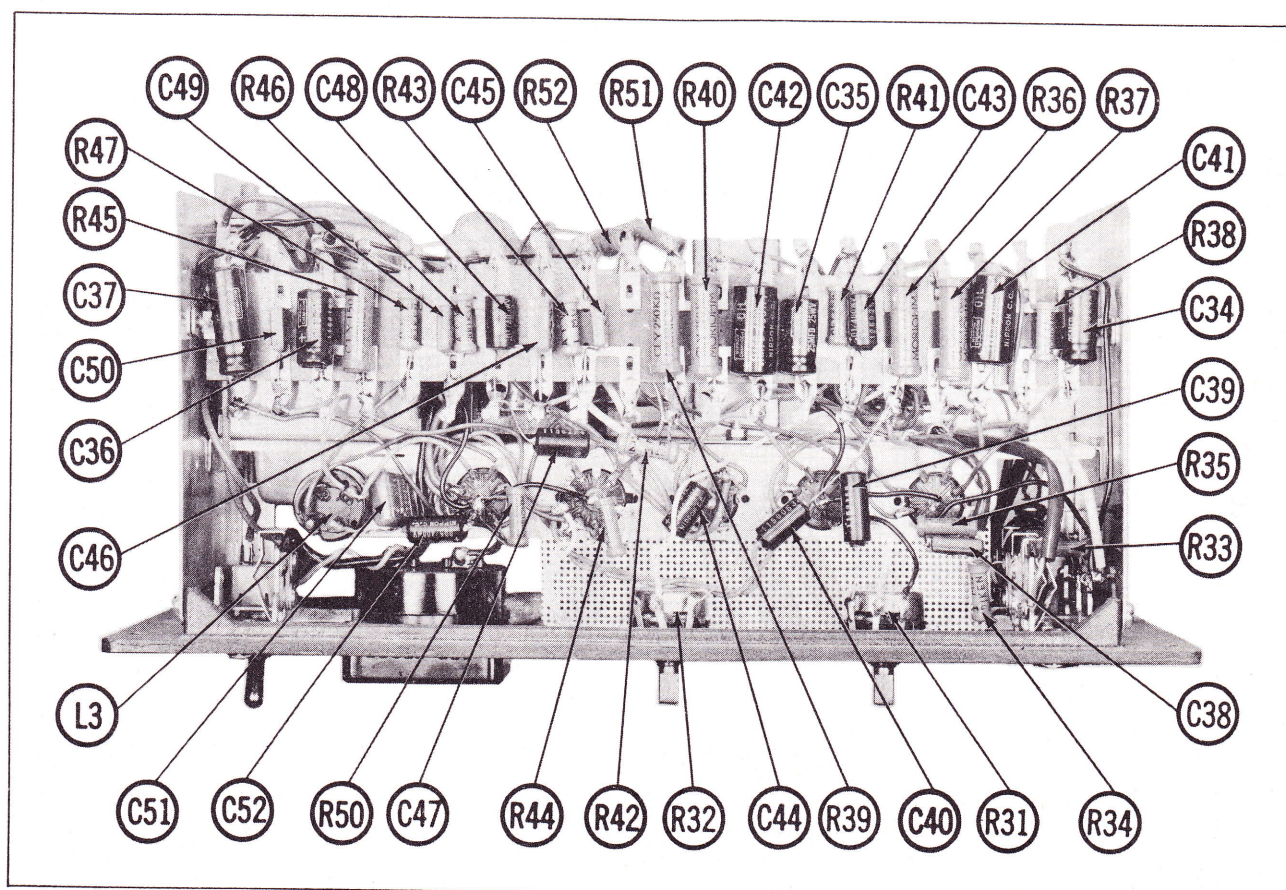
90-C AMP. CHASSIS TOP VIEW.



90-C AMP. CHASSIS BOTTOM VIEW.



A-901 AMP. CHASSIS TOP VIEW.



A-901 AMP. CHASSIS BOTTOM VIEW.

ROBERTS MODELS A-901,
90, 90-C, 90-S

FOLDER 13

90-C ELECT. PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire Use Belden No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord Use Belden No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

TUBES

CBS			GENERAL ELECTRIC			RAYTHEON			SYLVANIA		
ITEM No.	USE		TYPE		ITEM No.	USE		TYPE			
V1	Preamplifier		6AU6		V4	Bias Oscillator		6AR5			
V2	AF Amplifier		6AU6		V5	Rectifier		6X4			
V3	Output		6BQ5		V6	Stereo Preamplifier		12AD7			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ROBERTS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	20	350	90-51-23	AFH2-37 ①	B0300 ②	TC65	TMD-35 ③		
B	20	350							
C2	20	300	90-51-18	PRS1735	BR2035	TC65	TD-20-350	TVA-1608	
C3	20	300	90-51-18	PRS1735	BR2035	TC65	TD-20-350	TVA-1608	
C4	25	25	90-51-14	SRE25V25	BBR25-25	TT25X25	TD-25-25	TVA-1205	
C5	25	25	90-51-14	SRE25V25	BBR25-25	TT25X25	TD-25-25	TVA-1205	
C6	25	25	90-51-14	SRE25V25	BBR25-25	TT25X25	TD-25-25	TVA-1205	
C7	3	350	90-51-21	PRS1600	BR435	TC60	TD-4-450	TVA-1601	
C8	5	300	90-52-36	PRS1610	BR835	TC60	TD-8-350	TVA-1603	
C9	2.2	300VAC	90-15-13			TC70 †		OR-3020	

① Use Part #TU-2 insulating tube. ② Use Part #28521-5 insulating tube. ③ Use insulating tube.
† Use 2 units. Connect negative terminals together.
Connect positive terminals into circuit the same as the original non-polarized unit.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA					
				AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENC0 PART No.	MALLORY PART No.	SPRAGUE PART No.
C10	500	5%		1469-0005		5R5T5	CM-20B-501J	MCE245	MS-35
C11	.02	400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S2
C12	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C13	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C14	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1
C15	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C16	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C17	50	5%		1469-00005	TCZ-50	22R5Q5	CM-20B-500J	MCE225	MS-45
C18	1000			1468-001	DD-102	5W5D1	CM-20B-102M	MC255	1FM-21
C19	.002	400V		P488N-002	DD-202	CUB6D2	6DP-1-202	GEM-622	6TM-D2
C20	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C21	50	5%		1469-00005	TCZ-50	22R5Q5	CM-20B-500J	MCE225	MS-45
C22	200	5%		1469-0002	TCZ-200	22R5T2	CM-20B-201J	MCE237	MS-320
C23	1000	5%		1469-001		1R5D1	CM-20B-102J	MCE255	MS-21
C24	.005	400V		P488N-005	DD-502	CUB6D5	6DP-1-502	GEM-625	6TM-S5
C25	200	5%		1469-0002	TCZ-200	22R5T2	CM-20B-201J	MCE237	MS-32
C26	1000			1468-001	DD-102	5W5D1	CM-20B-102M	MC255	1FM-21
C27	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C28	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C29	500	5%		1469-0005		5R5T5	CM-20B-501J	MCE245	MS-35
C30	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ROBERTS PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	500K		90-51-97	B-60				Volume, Channel 1
R2	30K		90-51-53	B-25				Tone, Channel 1
R3	300Ω		90-52-40					Hum Balance, Preamp.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS
R4	10K		R13	2meg		R22	50K	
R5	1meg		R14	1meg		R23	5000Ω	
R6	500K		R15	500K		R24	10meg	
R7	250K		R16	150Ω		R25	250K	
R8	750K		R17	300K		R26	50K	
R9	1000Ω		R18	100K		R27	200K	
R10	250K		R19	100Ω		R28	10meg	
R11	750K		R20	8Ω		R29	250K	
R12	2000Ω		R21	500K		R30	500Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		ROBERTS PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Bias Osc.	90-51-35						

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 C)	ROBERTS PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.
L2	.050A	210Ω	7 Hy.	90-52-20	20C84	C-2975		C-1707	20C84

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	ROBERTS PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.
T1	117V ② .38A	580VCT ② .050A	6.3V ② .9A	90-51-57					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V ② 1.7A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ROBERTS PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	
T2	8500Ω	6-8Ω	90-51-58	24S07	A-2904	AU-604	A-3337	24S07	S-55Z

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ROBERTS PART No.	QUAM PART No.	
SP1	8"	PM	6-8Ω	90-35 ①	8A31Z8	① Some versions may use 5" x 7" Part #90-51-70.

MISCELLANEOUS

ITEM No.	PART NAME	ROBERTS PART No.	NOTES
M1	Switch	90-06	Off-On, DPDT, Center Off, Toggle
M2	Switch	90-51-55	Record-Playback (4PDT Slide Type)
M3	Switch	90-36	Preamp. In-Out (DPDT Slide Type)
M4	Meter	90-51-36	

A-901 ELECT. PARTS LIST AND DESCRIPTIONS

TUBES

CBS			GENERAL ELECTRIC			RAYTHEON			SYLVANIA		
ITEM No.	USE		TYPE			ITEM No.	USE		TYPE		
V7	Preamplifier		6AU6			V10	Bias Oscillator		6AR5		
V8	AF Amplifier		6AU6			V11	Rectifier		6X4		
V9	Output		6BQ5								

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ROBERTS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C31A	20	350	90-51-23	AFH2-37 ①	B0300 ②	TC65	TMD-35 ③	TVL-2626	
B	20	350							
C32	20	300	90-51-18	PRS1735	BR2035	TC65	TD-20-350	TVA-1608	
C33	20	300	90-51-18	PRS1735	BR2035	TC65	TD-20-350	TVA-1608	
C34	25	25	90-51-14	SRE25V25	BBR25-25	TT25X25	TD-25-25	TVA-1205	
C35	25	25	90-51-14	SRE25V25	BBR25-25	TT25X25	TD-25-25	TVA-1205	
C36	25	25	90-51-14	SRE25V25	BBR25-25	TT25X25	TD-25-25	TVA-1205	
C37	3	350	90-51-21	PRS1600	BR435	TC60	TD-4-450	TVA-1601	

① Use Part #TU-2 insulating tube.

② Use Part #28521-5 insulating tube.

③ Use insulating tube.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA						
				AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C38	250	5%	(200mmf) *	1469-00025	TCZ-240	22R5T25	CM-20B-251J	MCE240	MS-325	
C39	.02	400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S2	
C40	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1	
C41	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1	
C42	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P1	
C43	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1	
C44	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1	
C45	50	5%		1469-00005	TCZ-50	22R5Q5	CM-20B-500J	MCE225	MS-45	
C46	1000			1468-001	DD-102	4W5D1	CM-20B-102M	MC255	1FM-21	
C47	.002	400V		P488N-002	DD-202	CUB6D2	6DP-1-202	GEM-622	6TM-D2	
C48	.01	400V		P488N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1	
C49	50	5%		1469-00005	TCZ-50	22R5Q5	CM-20B-500J	MCE225	MS-45	
C50	200	5%		1469-0002	TCZ-200	22R5T2	CM-20B-201J	MCE237	MS-320	
C51	1000	5%		1469-001		1R5D1	CM-20B-102J	MCE255	MS-21	
C52	.005	400V		P488N-005	DD-502	CUB4D5	6DP-1-502	GEM-625	6TM-D5	

* Alternate Value.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	ROBERTS PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R31	500K		90-51-97	B-60				Volume, Channel 2
R32	30K		90-51-53	B-25				Tone, Channel 2

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS
R33	10K		R40	750K		R47	100K	
R34	1meg		R41	2000Ω		R48	100Ω	
R35	500K		R42	2meg		R49	8Ω	
R36	250K		R43	1meg		R50	500K	
R37	750K		R44	500K		R51	50K	
R38	1000Ω		R45	150Ω		R52	5000Ω	
R39	250K		R46	300K				

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		ROBERTS PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L3	Blas Osc.	90-51-35						

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 Hz)	ROBERTS PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L4	.045A	210Ω	7 Hy.	90-52-20	20C84	C-2975		C-1707	20C84	C-4X

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	ROBERTS PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T3	117V @ .37A	585VCT @ .045A	6.3V @ .6A	90-51-57						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 1.7A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ROBERTS PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	6500Ω	6-8Ω	90-51-58	24S07	A-2904	AU-804	A-3337	24S07	S-55Z	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ROBERTS PART No.	QUAM PART No.	
SP2	8"	PM	6-8Ω	90-35 ①	8A31Z8	① Some versions may use 5" x 7" Part #90-51-70.

FUSES

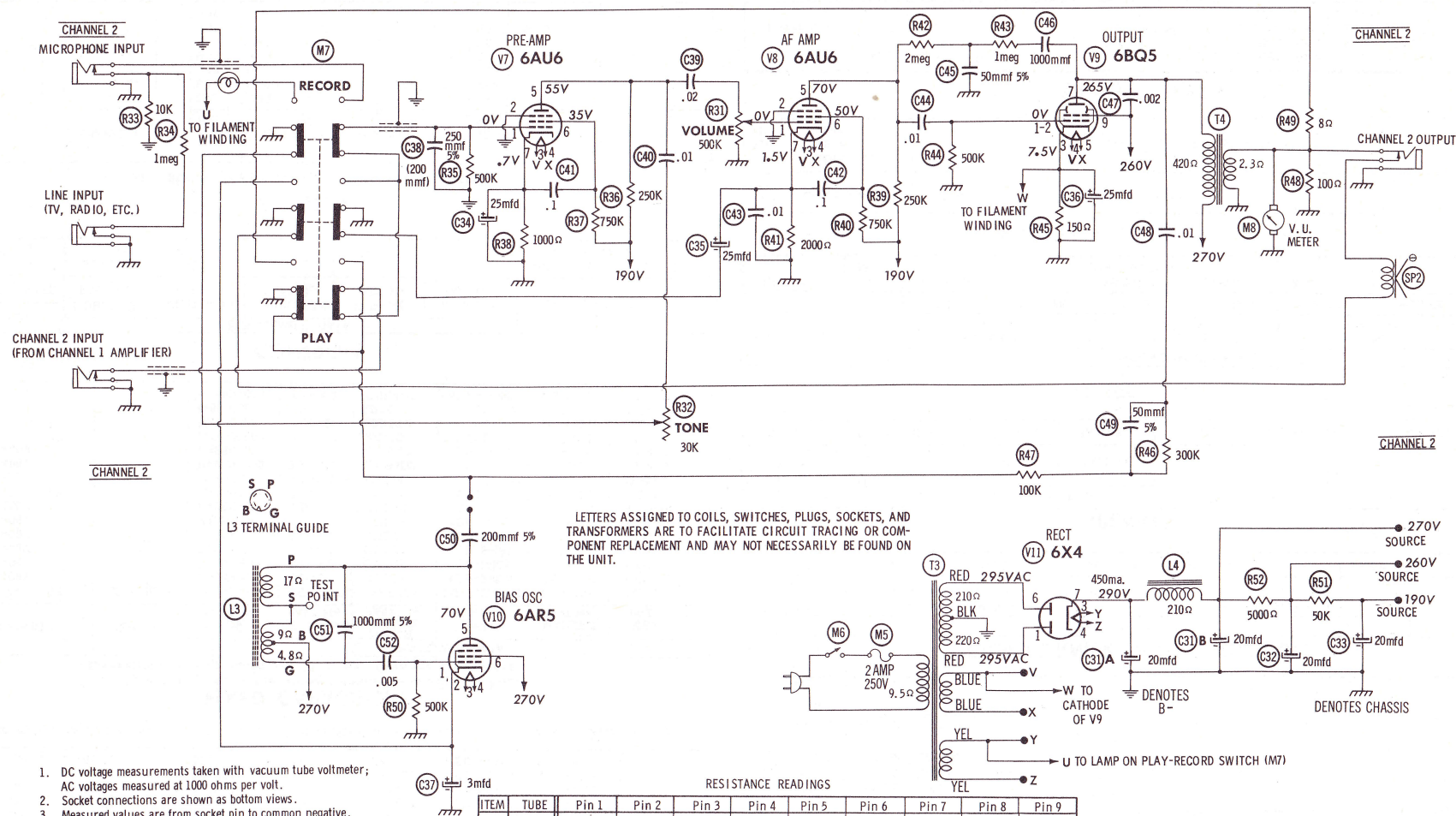
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ROBERTS PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M5	3AG	2A 250V	90-50-41	90-50-42	312002 (3AG 2A 250V)	356001	AGC2	4407

MISCELLANEOUS


ITEM No.	PART NAME	ROBERTS PART No.	NOTES
M6	Switch	90-51-56	Off-On, Toggle, (SPST)
M7	Switch	90-52-48	Record-Playback (4PTT Slide Type)
M8	Meter	90-51-36	

WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

Smd		RESISTANCE READINGS									
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	
V7	6AU6	500K	0Ω	150Ω	150Ω	†305K	†805K	1000Ω			
V8	6AU6	0Ω	0Ω	150Ω	150Ω	†305K	†805K	2000Ω			
V9	6BQ5	500K	500K	150Ω	150Ω	150Ω	NC	†640Ω	NC	†5700Ω	
V10	6AR5	500K	INF = 0Ω	80Ω	80Ω	†250Ω	†210Ω	NC			
V11	6X4	220Ω	NC	80Ω	80Ω	NC	210Ω	9			

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED.
 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
 MEASURED IN "RECORD" POSITION.
 MEASURED FROM PIN 7 OF V11. NC NO CONNECTION

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ROBERTS MODEL A-901

TAPE DECK PARTS LIST AND DESCRIPTIONS

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ROBERTS PART No.	Gramer PART No.	Meissner PART No.	Miller PART No.	Ram PART No.
L5	Hum Buck Coil	90-50-82				

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			ROBERTS PART No.		LITTELFUSE PART No.	
M9	3AG	2A 250V	FUSE	HOLDER	FUSE	HOLDER
			90-50-41	90-50-42	312002 (3AG 2A 250V)	356001 AGC2

MISCELLANEOUS

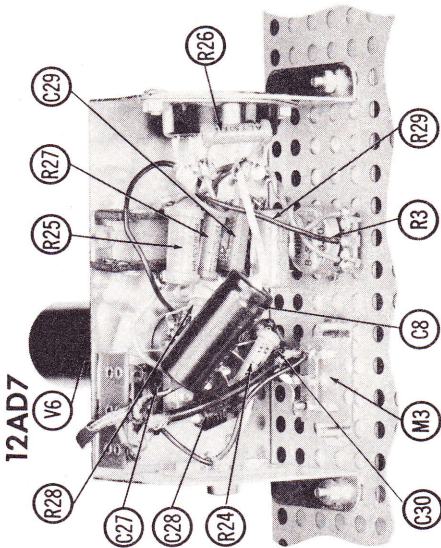
ITEM No.	PART NAME	ROBERTS PART No.	NOTES
M10	Erase Head	90-51-95	(Multitrace Stereo) Models 90B, 90C (Michigan Mag. Stereo) Model 90S (Stereo) Model 90S (Monaural) Model 90 Function (Rotary)
M11	Record Head Assy	90-51-31	
	Record Head Assy	90-51-72	
	Record Head Assy	90-51-64	
M12	Switch	90-51-08	
M13	Motor	90-50-14	
	Microphone	90-01	

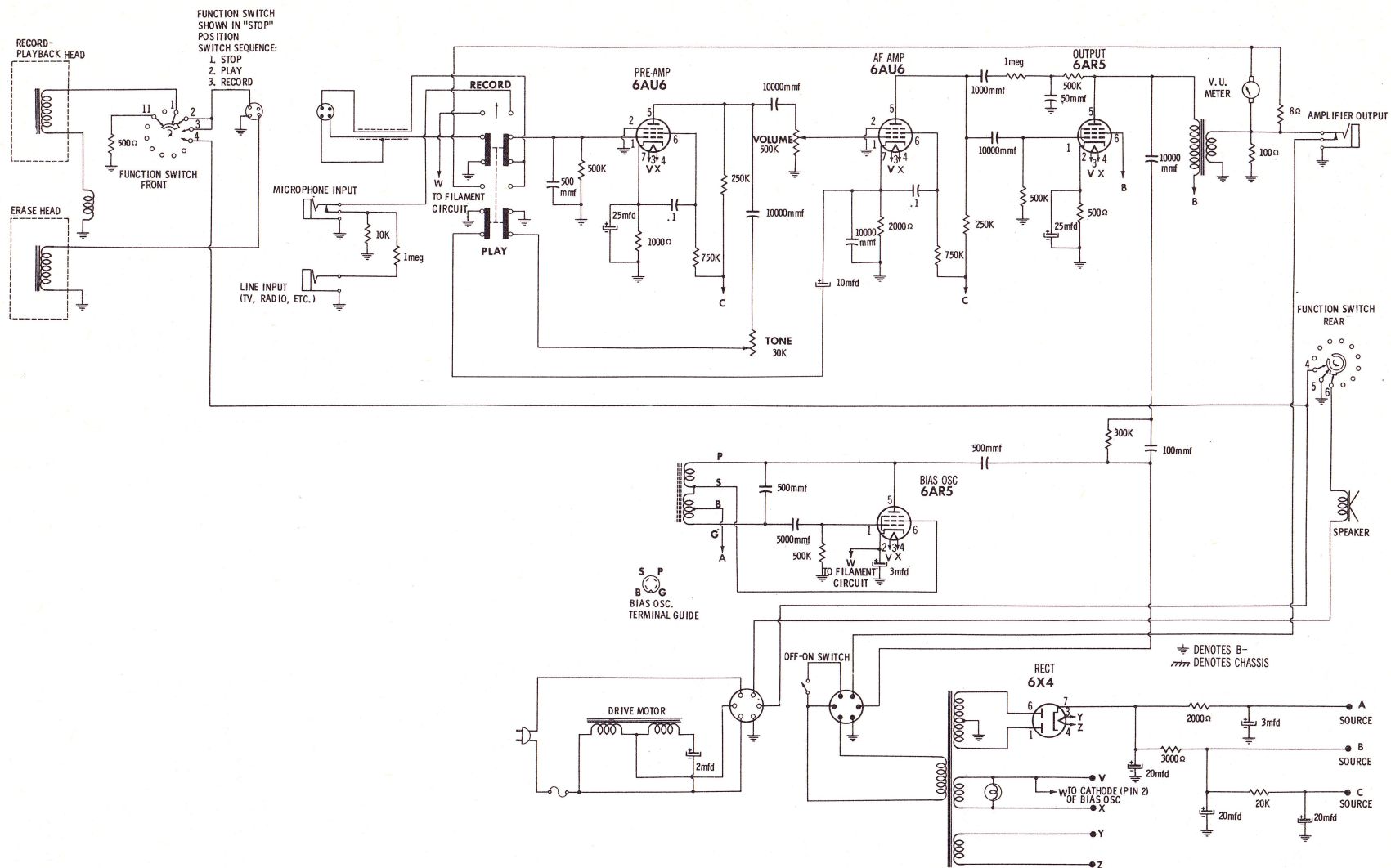
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	90-51-27	Volume, Tone Record-Playback Lever Wind-Rewind
Knob	90-38	
Knob	90-50-22	

STEREO PRE-AMP CHASSIS





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ROBERTS MODEL 90